

Claims

1. Method for separating a useful layer (1), initially attached by a sacrificial layer (2) to a layer (3) forming a substrate, method comprising

- 5 - at least partial etching of the sacrificial layer (2),
- doping, before etching of the sacrificial layer (2), of at least a part of the surface (4, 5) of at least one of the layers (1, 3) in contact with the sacrificial layer (2) and,
- 10 - after etching of the sacrificial layer (2), a superficial etching phase of said surface (4, 5) so as to increase the roughness of the doped part of the surface (4, 5),

method characterized in that it comprises deposition, before doping, of a mask (9) on at least a predetermined part of the useful layer (1) so as to delineate at least one doped zone and at least one non-doped zone of said surface (4, 5), one of said zones forming a stop (6, 7) after the superficial etching phase.

2. Method according to claim 1, characterized in that, said surface (4, 5) intrinsically comprising doping elements of a predetermined type, doping is performed by doping elements of the same type, the stop (6, 7) being formed by the non-doped zone.

3. Method according to claim 1, characterized in that, said surface (4, 5) intrinsically comprising doping elements of a predetermined type, doping is performed by doping elements of opposite type, the stop (6, 7) being formed by the doped zone.

4. Method according to any one of the claims 1 to 3, characterized in that the mask (9) is delineated by photolithography.

5. Method according to claim 4, characterized in that the photolithography has a resolution of about 0.3 micrometers.

5 6. Method according to any one of the claims 1 to 5, characterized in that it comprises, after doping, an epitaxy step increasing the thickness of the useful layer (1).

10 7. Method according to any one of the claims 1 to 6, characterized in that doping is performed by ion implantation, the doping elements being taken from the group comprising Boron, Phosphorous and Arsenic.

15 8. Method according to any one of the claims 1 to 7, characterized in that superficial etching is performed by an aqueous solution containing $K_2Cr_2O_7$ and HF.

9. Method according to any one of the claims 1 to 8, characterized in that the sacrificial layer (2) is completely etched before the superficial etching phase of said surface (4, 5).

20 10. Method according to any one of the claims 1 to 8, characterized in that it comprises

- after doping and before the superficial etching phase of said surface (4, 5), partial etching of the sacrificial layer (2) so as to leave at least one spacer block (8) between the layer (3) forming the substrate and the useful layer (1),
- the superficial etching phase of said surface (4, 5) using the spacer block (8) as mask, so as to form at least one stop (6, 7) in said surface (4, 5),
- removal of said spacer block (8),
- an additional superficial etching phase of said surface (4, 5) so as to increase the roughness of the surface of the stop (6, 7).

11. Component comprising a suspended useful layer (1), attached by fixing means to a substrate, characterized in that it is obtained by a method according to any one of the claims 1 to 10.